to promote awareness on the medications, balanced diet and physical activity to improve the quality of life of an individual.

PRM202

SIMULATING INDIVIDUAL PATIENT LEVEL DATA TO ADDRESS TREATMENT SWITCHING WHEN ONLY SUMMARY DATA ARE AVAILABLE

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OBJECTIVES: Treatment switching commonly occurs in the pivotal HTA evidence for advanced or metastatic cancer treatments submitted to reimbursement agencies. Simple approaches, such as Intention-to-treat (ITT) analysis, have typically been used to analyse data with treatment switching, despite simulation studies showing these to drastically underestimate the underlying treatment effect. With more manufacturers conducting indirect comparisons (ICs) to compare treatments, summary data are being used more in analysis. The method outlined addresses treatment switching when only summary data are available to ensure appropriate estimates for the treatment effect are achieved when the data is then used in an IC. **METHODS:** Using digitised survival curves, multiple datasets that are representative of the original individual patient data (IPD) are simulated. Treatment switching information is estimated from reported information on progression-free survival, and then established methods which adjust appropriately for treatment switching used to analyse the simulated data. This approach is applied to an example from a technology appraisal (TA) submitted to National Institute for Health and Care Excellence (NICE), and the ITT hazard ratio and median survival obtained and compared with those reported, before analysis using a Rank Preserving Structural Failure Time Model (RPSFTM). **RESULTS:** Averaging over 2000 datasets, the replicated summary statistics were similar to those reported. Both median survival times were within 1 month of those stated in the TA and the hazard ratio less than 0.05 different. Subsequent analysis using an RPSFTM shows the new treatment to be more effective, and inappropriately adjusting for crossover to have underestimated the treatment effect. **CONCLUSIONS:** Adjusting summary data is important as otherwise, subsequent analysis conducted will give inappropriate results. The simulated data approach well represents the original IPD, giving on average similar results to those reported. Hence, the further analysis to address treatment switching issues gives more appropriate treatment effect estimates.

PRM203

MODELING THE EFFECT OF COMBINING ALOGLIPTIN WITH DUAL THERAPY IN TYPE 2 DIABETES

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OBJECTIVES: To estimate the impact of combining the dipeptidyl peptidase-4 (DPP-4) inhibitor, alogliptin, with metformin and sulfonylurea (alogliptin triple therapy) to achieve glycemic control in patients with type 2 diabetes. **METHODS:** Since no clinical trial of alogliptin triple therapy has been conducted, the effect of adding alogliptin to dual therapy (metformin+sulfonylurea) was modeled using novel additive effect methodology, utilizing data from a previous mixed treatment comparison (MTC). The following assumptions were made: the efficacy of triple therapy can be estimated as a function of its constituent parts, and the efficacies of the constituent parts are equivalent. Pooled data for the absolute change from baseline in glycosylated hemoglobin (HbA_{1c}) from trials of sitagliptin, linagliptin, and vildagliptin triple therapy, and for their constituent parts, informed the model. A weighting factor, β coefficient, derived from DPP-4 mono, dual, and triple therapy trials, was used to estimate the effect size for triple therapy using the sum of the constituent parts. The estimated mean β value was validated against the observed effect size of alog liptin+pioglitazone+metformin, using the pooled effect from the MTC. **RESULTS:** An estimated mean β coefficient value of 0.83 represented the DPP-4 inhibitor class. Validation of the approach resulted in a similar β coefficient for pioglitazone triple therapy (0.82). Absolute change in HbA_{1c} from baseline for alogliptin triple therapy was estimated as -0.77% (95% CI -1.16, -0.39). Similar values were observed in the MTC for sitagliptin -0.94% (95% CI -7.34,5. 40), linagliptin -0.65 (95% CI -6.87,5. 60), and vildagliptin -0.80% (95% CI -7.00,5. 43). **CONCLUSIONS:** The wide confidence interval is consistent with expectations in the literature and is a limitation of the method employed, in that it requires the variance of the individual studies to be summated. Nevertheless, the method demonstrates the value of modeling when clinical trial evidence is not available.

PRM204

UNCERTAINTY AND PROBABILISTIC METHODS IN MULTI-CRITERIA DECISION ANALYSIS

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OBJECTIVES: Multi-Criteria Decision Analysis (MCDA) is a collection of techniques for choosing optimal decisions when two or more criteria need to be taken into account in the decision process. Most MCDA techniques require the specification of a number of parameters; criteria weights, utility functions or indifference thresholds. We wish to account for the uncertainty in these parameters which may arise due to the fuzzy nature of the Decision Maker's preferences, conflicting opinions between a group of decision makers or population group, or the abstract nature of the parameters. **METHODS:** We implement some MCDA models from a Bayesian perspective where parameters come from posterior probability distributions representing the combination of available knowledge on the parameters. Such knowledge can come from empirical data, expert elicitation, survey data, decision-making committees, or some combination of these. **RESULTS:** Depending on the method used, the end result is either a benefit function which quantifies the uncertainty in the benefit score for each action, or a rankogram which depicts the uncertainty in the ranking of actions. **CONCLUSIONS:** Knowledge about this uncertainty allows decision makers to make more informed decisions. A decision action may be clear when uncertainty is sufficiently low, or it may be necessary to request more information or to refine the decision formulation if uncertainty is high, potentially leading to improved decision-making.

PRM205

SYSTEMATIC REVIEW AND CRITICAL APPRAISAL OF THE STATISTICAL METHODS USED IN PUBLISHED STUDIES TO INDIRECTLY COMPARE NOVEL ANTICOAGULANTS (NOACS) WITH WARFARIN FOR THE PREVENTION OF STROKE IN PATIENTS WITH ATRIAL FIBRILLATION (AF)

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INTRODUCTION: The three main novel anticoagulants (NOACs) currently licensed in Europe, apixaban, dabigatran and rivaroxaban, have all been directly compared against warfarin in randomised controlled trials. However, none of the three drugs have been directly compared against each other. Thus, there has been an increase in the number of meta-analyses and indirect comparisons published comparing the relative efficacy and safety of these novel anticoagulants against each other via warfarin as a common comparator. **OBJECTIVES:** Systematically review all meta-analyses and indirect comparisons evaluating the NOACs against warfarin for the prevention of stroke in patients with AF and critically appraise the statistical methods used to do so. **METHODS:** Systematic searches of EMBASE, MedLine, EBM Reviews, EconLIT as well as manual searches of ClincalTrials. gov, the Cochrane Library, CADTH, NICE, NHSEED and HTA were conducted. Data was abstracted from any citation applying statistical methods to compare the efficacy and safety of NOACs for the prevention of AF-related stroke. Information regarding the statistical approach; model assumptions; data presentation; interpretation of the evidence; and discussions of internal and external validity was used to quality rate each study. **RESULTS:** Bucher's method of adjusted indirect comparison was most widely used. There were generally three main model assumptions required: the similarity, homogeneity and consistency assumptions, each being investigated with varying scrutiny in the studies reviewed. According to the quality assessment, the indirect comparison conducted by Wells and colleagues (2012) is of the highest relative quality. **CONCLUSIONS:** The limited number of RCTs available comparing the NOACs to standard therapy, creates considerable uncertainty surrounding the comparative efficacy and safety of these anticoagulants. In order to establish which individual NOAC is most likely to benefit a given patient population, indirect comparisons and meta-analyses are increasingly used. However, the quality of indirect comparison studies are variable and results should be interpreted with care.

PRM206

METHODOLOGICAL ASSESSMENT OF MATCHING-ADJUSTED INDIRECT COMPARISONS: CASE STUDY APPLICATION TO ATTENTION DEFICIT/ HYPERACTIVITY DISORDER (ADHD)

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OBJECTIVES: Matching-adjusted indirect comparison (MAIC) is a novel comparative effectiveness approach to address biases that can appear in traditional indirect comparison (IC) methods when patient characteristics differ across trials. We examined three unanswered MAIC methodological questions and applied the proposed solutions to a comparison of ADHD treatments. **METHODS:** Using individual patient data from two randomized controlled trials (RCTs) comparing guanfacine (GXR) vs placebo and published summary statistics from four RCTs comparing atomoxetine (ATX) vs placebo, MAIC was used to reweight the GXR data so that observable GXR patient characteristics matched those of ATX patients. Change in ADHD-RS-IV scores was the primary endpoint. Comparative efficacy results were evaluated for their sensitivity to changes in the following three MAIC specifications: variable selection using regression-based methods, statistical moments matched (i.e., mean vs mean and variance), and matching on placebo-arm outcomes. **RESULTS:** Both treatments decreased ADHD-RS-IV scores relative to placebo (-17.9 GXR vs -10.7 placebo; -14.6 ATX vs -5.8 placebo). In the baseline MAIC specification adjusting for patient baseline characteristics and placebo arm outcomes, GXR produced larger decreases in ADHD-RS-IV scores than ATX (Δ: -3.9, $p<0.004$). The results were insensitive to adding variables to the matching algorithm (Δ: -3.8, $p<0.023$), or matching only covariate means rather than both means and variances (Δ: -3.6, $p<0.006$). Applying MAIC without matching placebo arm outcomes indicated a slightly greater decrease in ADHD-RS-IV scores for ATX, but there was no statistically significant difference between GXR and ATX (Δ: 0.6, $p<0.649$). **CONCLUSIONS:** In this study, MAIC results were insensitive to variable selection via regression and the statistical moments matched, but matching the placebo arms altered the results. Matching placebo arm outcomes is valid when unobserved trial-specific factors have a differential impact on a trial's treatment and control arm outcomes; this was likely the case in this GXR-ATX study.

PRM207

PROPOSED CHECKLIST FOR NON-STATISTICIANS TO ASSESS THE QUALITY OF A NETWORK META-ANALYSIS IN THE CONTEXT OF A NICE SUBMISSION

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OBJECTIVES: To develop a checklist to assess the quality of a network meta-analysis (NMA) in the context of a submission to NICE. This checklist is intended to be comprehensible and easy-to-use by non-statisticians to assess whether an NMA is suitable for a submission to NICE and/or to populate cost-effectiveness models within the context of the NICE requirements. **METHODS:** An ad-hoc search of the literature was conducted to identify existing checklists. Items from these checklists were extracted and critically reviewed. Recommendations from NICE as well as existing NICE submissions and corresponding comments from the evidence review groups (ERG) were used to develop the checklist. Our checklist was validated by health economists and pharmacists not trained in NMA on the basis of a NICE submission